(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau





(43) International Publication Date 3 March 2005 (03.03.2005)

PCT

(10) International Publication Number WO 2005/019141 A3

(51) International Patent Classification⁷: C07C 17/383, 17/20, 17/354, 19/08

(21) International Application Number:

PCT/JP2004/011709

(22) International Filing Date: 9 August 2004 (09.08.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2003-208236
60/498,284
2004-121604
21 August 2003 (21.08.2003) JP
28 August 2003 (28.08.2003) US
16 April 2004 (16.04.2004) JP

(71) Applicant (for all designated States except US): SHOWA DENKO K.K. [JP/JP]; 13-9, Shibadaimon 1-chome, Minato-ku, Tokyo, 1058518 (JP).

(72) Inventors; and

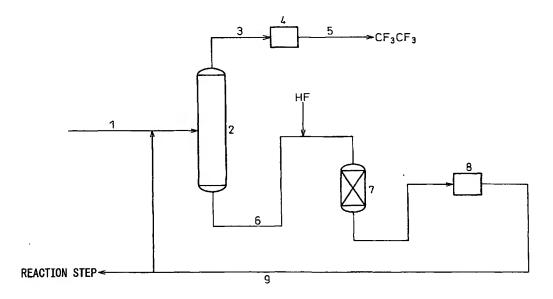
(75) Inventors/Applicants (for US only): OHNO, Hiromoto [JP/JP]; c/o Production & Technology Control Department, Gases & Chemicals Division, SHOWA DENKO K.K., 5-1, Ogimachi, Kawasaki-ku, Kawasaki-shi, Kanagawa,

2100867 (JP). ARAI, Tatsuharu [JP/JP]; c/o Production & Technology Control Department, Gases & Chemicals Division, SHOWA DENKO K.K., 5-1, Ogimachi, Kawasaki-ku, Kawasaki-shi, Kanagawa, 2100867 (JP).

- (74) Agents: AOKI, Atsushi et al.; A. AOKI, ISHIDA & AS-SOCIATES, Toranomon 37 Mori Bldg., 5-1, Toranomon 3-chome, Minato-ku, Tokyo, 1058423 (JP).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

[Continued on next page]

(54) Title: PROCESS FOR PRODUCING HEXAFLUOROETHANE AND USE THEREOF



(57) Abstract: A process for producing hexafluoroethane, comprising a step of distilling a crude hexafluoroethane containing chlorine compounds each having two carbon atoms to distill out hexafluoroethane as a top flow from the top of a distillation column and separate a hexafluoroethane mixture containing the chlorine compounds as a bottom flow from the bottom, and a step of contacting the bottom flow with hydrogen fluoride in the gas phase at a temperature of 300 to 500 °C in the presence of a fluorination catalyst to fluorinate the chlorine compounds. This process provides hexafluoroethane which can be used mainly as a cleaning gas in the production process of a semiconductor device.

WO 2005/019141 A3



FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report: 12 May 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.